# FE249

Diagram No. 1222-4

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

## DESCRIPTIVE REPORT

*Type of Survey* Field Examination

*Field No.* R/H-5-1-84

*Office No.* FE-249

### LOCALITY

*State* Virginia

*General Locality* Chesapeake Bay

*Locality* York Spit Channel

1984

CHIEF OF PARTY
LCDR D.D.Winter

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FE249

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to sign off see Record of Application

NOAA FORM 77-28 (11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

# HYDROGRAPHIC TITLE SHEET

REGISTER NO.

FE-249

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

R/H 05-01-84

State Virginia

General locality Chesapeake Bay

Locality ~~AWOIS Item #3190~~ YORK SPIT CHANNEL

Scale 1:~~5~~20000 Date of survey ~~07 March~~ 11 APRIL - ~~16~~ 3 April, 1984

Instructions dated 22 December, 198~~4~~3 Project No. OPR-E609-RU/HE-84

Vessel NOAA Ships RUDE(9040) and HECK(9140)

Chief of party LCDR Donald D. Winter

Surveyed by LCDR D.D. Winter, LT N.G. Millett, LT E.M. Clark, ENS T.G. Callahan

Soundings taken by ~~echo sounder~~, ~~hand lead~~, ~~pole~~ and PNEUMATIC DEPTH GAUGE ~~pneumofathometer~~.

Graphic record scaled by E.M.C., T.G.C., M.J.K.

Graphic record checked by D.D.W., N.G.M., T.G.C.

Protracted by N/A Automated plot by XYNETICS 1201 PLOTTER (CAMC)

Verification by C.D. MEADOR

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW ~~corrected for predicted tides.~~

REMARKS: All times recorded in UTC.

NOTES IN RED WERE MADE DURING OFFICE PROCESSING.

STANDARDS CK'D
C:Loy 10-3-84

AWOIS MSM 12/4/84

SURF MSM 12/4/84

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U.S. G.P.O. 1972-769-565/519 REG.#6

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APPENDICES



* FILED WITH THE ORIGINAL FIELD RECORDS.

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY ~~N~~ FE-249, R/H 05-01-84
AWOIS Item #3190
1:~~5~~20,000 SCALE, 1984
NOAA SHIPS RUDE & HECK
LCDR DONALD D. WINTER, COMDG.

A. Project Authority

This project was conducted in accordance with Hydrographic Project Instructions OPR-E609-RU/HE-84, dated 22 December, 1983. There are no changes or additions to these original instructions. The purpose of this project is to verify or disprove certain charted submersed wrecks and obstructions in the southern part of Chesapeake Bay. Detached postitons, least depths, or wire-drag clearances were to be obtained for these submersed wrecks and obstructions. This report covers the complete investisation of AWOIS Item #3190.

B. Characteristics and Limits of Area Surveyed

This report covers the area bounded by the 100 meter search radius about the charted position of AWOIS Item #3190, latitude 37-08-53.4N, longitude 076-09-09.6W. THIS ITEM IS A 28FT WIRE-DRAG CLEARANCE ON A WRECK. SOURCE CL 1960/78.

C. Survey Vessels

The NOAA Ships RUDE, vesno 9040, and HECK, vesno 9140, were the only vessels assigned to this survey. Launches from the NOAA Ship MT. MITCHELL assisted with survey operations at the start of this project. The launches used were the Jensen launches 1002 and 1012 and the Boston Whaler launch 22. These launches assisted with operations from 07 March, 1984, JD 067 to 30 March, 1984, JD 090. NOT USED FOR WORK ON AWOIS ITEM #3190.

The NOAA Ships RUDE and HECK were utilized from 02 April, 1984, JD 093 to the completion of this survey on 16 April, 1984, JD 107. The Ship RUDE obtained the detached positions and performed the side scan sonar work during this survey. WORK ON AWOIS ITEM #3190 WAS DONE FROM 11 APRIL TO 13 APRIL 1984.

D. Hydrographic Sheets

The hydrographic sheets used in this survey were made of mylar and were constructed with the Digital PDP 11/34 computer and Houston Instruments roll-bed plotter aboard the Ship RUDE. The project instructions required that all data be smooth plotted at a scale of 1:20,000 but a scale of 1:5000 was used for all field plotting and final data analysis.

The boat sheets were plotted at a scale of 1:5,000 and were used to hand plot the towing vessel's position while on line. A smooth sheet was also plotted aboard the ship using the same equipment as described above. This smooth sheet was used to

machine plot the towing vessel's position during side scan operations and the least depth detached position of AWOIS Item #3190. The detached positions of the two buoys in the vicinity of the survey area were also machine plotted on this smooth sheet. An additional wreck plot overlay was constructed indicating the limits of the wreck as determined using only the side scan sonar data. The field records are being sent to the Atlantic Marine Center for final verification and smooth plotting.

E. Equipment and Techniques

(1) Survey Operations

Reconnaissance side scan sonar lines were accomplished in the vicinity of the charted position of AWOIS Item #3190 using the Klein system provided by AMC. This system consisted of a Model 521 recorder, S/N 088, a 100 KHz towfish, a K-Wing depressor and a towcable. A marker float was positioned over the wreck from this side scan sonar data to assist diving operations. Divers then investigated the wreck and obtained the least depth on JD 104 using a pneumofathometer.

Del Norte rates obtained on fixes were recorded with an Eaton Model 7000+ serial printer during this survey. This printer worked fairly well considering the fact that it was not designed to be operated in a marine environment. The printer would often type out a line of meaningless characters or rates from the previous fix before the current fix was recorded. The printer records were annotated such that these meaningless characters and extraneous rates were lined out leaving the correct fix rates clearly displayed.

A Raytheon model DSF 6000N echo sounder, S/N B051N, was operated and annotated concurrently during all side scan sonar operations. The echo sounder recordings were reviewed daily to ensure that no large objects located directly under the sonar towfish went undetected. This is the first survey conducted with this echo sounding system and it is apparent that the internal gain setting of the DSF 6000N is much higher than that of the Raytheon DE-719B, which was used previously aboard the RUDE and HECK. The gain control settings for both the high and low frequency impulses were set on "AUTO" during operations. The echo sounder was operated at a depth of less than 50 feet on the 0-50 foot range scale throughout all operations. The resulting trace indicates many items in the water column or a rebounding of the high frequency sound impulses. It is recommended that the gain controls of this echo sounding system be manually tuned during operations in shallow water for optimum results.

Although it is not anticipated that these soundings records will be used for charting purposes, the settlement and squat data for the RUDE and HECK, obtained in Norfolk Harbor on 25 January 1983, is included in this report. No velocity corrections or settlement and squat determinations were actually conducted within or during this project. SEE EVAL. REPORT SEC. 10b.

(2) Diving Operations

This wreck was thoroughly investigated by divers during this survey. The least depth over this wreck was taken on JD 104, Fix #14 and is 35.4 feet at latitude 37-08-52.76N, longitude 076-09-08.93W. This depth was determined by ~~Pneumofathometer~~ PNEUMATIC DEPTH GAUGE and corrected for instrument error. ~~and predicted tides.~~

Complete documentation of all dive operations, data collected by divers, and the ~~Pneumofathometer~~ PNEUMATIC DEPTH GAUGE and leadline depths obtained over the wreck are found in Appendix F. of this report.

This wreck was first investigated by divers during this survey on JD 103. On this day divers identified the bow section of the wreck and a marker float was established on the jack stay on the bow. A depth was obtained over this position by pneumofathometer and a detached position, Fix #12, was taken on this marker float on JD 103. Diver bottom time constraints precluded complete investigation of the wreck on JD 103.

Diver investigation of the wreck on JD 104 determined the highest point of the wreck. This point is on the aft part of the remaining superstructure on the port side. Least depth over this highest point was determined by ~~Pneumofathometer~~ PNEUMATIC DEPTH GAUGE and a marker float was established by divers on this highest point. Tape measurements of the dimensions of the wreck were also taken on JD 104 and are documented in the drawings of the wreck contained in Appendix F. of this report.

F. Control Stations

Two electronic control stations were used for this section of the survey. These stations were:

| Station Name | Latitude<br>Longitude | Elev. |
|---|---|---|
| THIMBLE SHOAL LIGHTHOUSE(1919) | 37-00-51.712N<br>076-14-25.075W | 16.76m |
| YORK SPIT LIGHTHOUSE(1900) | 37-12-34.452N<br>076-15-16.369W. | 11.28m |

These stations were located by NGS and the adjusted positions for these stations were obtained from published NGS horizontal control data. All stations are of Third-Order, Class I control accuracy or better. The station positions are based upon the North American Datum of 1927.

G. Calibration and Position Control

Vessel positioning for all work was accomplished with the Del Norte 520 series electronic positioning equipment operated at a frequency of 9400 MHz in the range-range mode. A listing of the DMU and master unit used by the vessel during this survey is listed by Julian day in Appendix A. Remote unit 78, S/N 2986, was installed at THIMBLE SHOAL LIGHTHOUSE. The remote installed

at YORK SPIT LIGHTHOUSE was unit 72, S/N 2897. A complete listing of all visual and electronic control stations used during this survey is included in Appendix D. of this report.

Three baseline calibrations were performed during this survey. All baseline calibrations were conducted in the immediate work area and entirely over water in accordance with AMC OPORDER 79. Baseline calibration distances were determined by the HP 3800A electronic distance measuring instrument, S/N 0987A00157. The baseline used for all calibrations ran from the Little Creek Coast Guard, western most pier to the Little Creek East Jetty Light "1". The distance of this baseline, as measured by the HP 3800A, was 2183.14m.

All remote units were initially calibrated on 07 March, 1984, JD 067.

On JD 096 a system check calibration with the paired Del Norte units, DMU S/N 145, master S/N 3033 was performed. The correctors from this calibration for Sta. 01, THIMBLE SHOAL LIGHTHOUSE, remote 78, were consistent and averaged -16m. The correctors for Sta.02, YORK SPIT LIGHTHOUSE, remote 72, were not as consistent but were all less than 10m with an average of -2m. Due to this large corrector for Sta. 01 all DMU, master pairs were baseline calibrated again for remote 78 on 06 April, 1984, JD 097. The DMU S/N 145, master S/N 3033 pair were corrected for remote 78 by -7m during this base line calibration. Large fluctuations in the readings were observed with this DMU, master pair during the calibration. The DMU S/N 135, master S/N 2889 pair was corrected by -1m for remote 78 and had steady readings during the calibration.

All position data for this survey was collected by the DMU S/N 135, master S/N 2889 pair. The daily average calibration check for Sta. 01 on JD 103 was +9m. On JD 104, the daily average check for this station was +13m. The calibration checks for Sta.02 were consistent and all less than 10m. Daily calibration checks were accomplished using the three point sextant fix calibration method in accordance with the Hydrographic Manual section 4.4.3.3.

A closing baseline calibration of remote units 72 and 78 with the DMU S/N 135, master S/N 2889 pair was performed on 16 April, 1984, JD 107. This closing calibration resulted in a final corrector for remote 78 of +7m and a final corrector of +6m for remote 72.

Extreme changes in the temperature and the humidity occurred between the days on which baseline calibrations and daily calibration checks were performed during this survey. Daily calibration checks for later survey work on this project resulted in consistantly larger correctors when using the calibration scheme on the western shore of Chesapeake Bay as compared with the calibration scheme on the eastern shore. The daily calibration checks were also influenced by slight index and side errors found in the sextants used for the daily calibration checks. These adjustable errors in the sextants were found and corrected during later survey work on this project. These changes in climatic conditions, the different calibration schemes used during this survey and the sextant errors may have contributed to the variance in correctors observed between the baseline

calibrations and the daily calibration checks. Daily calibration correctors were stable and the baseline calibration correctors were within accuracy tolerances for a survey of this scale. Therefore only the baseline calibration data should be applied to the raw position data during final processing and smooth plottings. THE DAILY CORRECTORS FOR JD104 WERE USED DURING FINAL PROCESSING.

The ~~Pneumofathometer~~ PNEUMATIC DEPTH GAUGE was calibrated on 13 March, 1984, JD 073, at buoy "T" of Thimble Shoal Channel, east of Point Comfort, latitude 37-02-30N, longitude 076-17-06W. All depths determined by this survey have been corrected for instrument error as determined in Appendix G.

H. Dates of Survey

This survey began on 07 March, 1984, JD 067, and was completed on 16 April, 1984, JD 107. WORK ON AWOIS ITEM # 3190 WAS DONE FROM 11 APRIL TO 13 APRIL 1984.

I. Reduction and Processing of Data

All side scan data was initially recorded in NOAA Form 77-44, Soundings Volumes. All header data, position numbers, time, and position control data were recorded in the appropriate columns in the volumes. The remarks column was used to record all line information, vessel rpms, length of towcable, measured from the waterline to the towfish, vessel headings, and any other unusual or noteworthy remarks. The towfish layback was computed using only the stern to antenna distance, 21.3 meters, since the towfish maintained a nearly vertical towcable angle during operations.

Position data from the side scan sonar work was entered in the Digital PDP 11/34 computer with a modified version of the R/H Double Precision Wire-Drag program. Rates for just one vessel were entered in this program and a single vessel position plot was then generated with the Houston Instruments roll-bed plotter. All side scan sonar work and detached positions, with the exception of Fish Trap Buoy "C39", were plotted in this manner. The 1983 versions of the RUDE and HECK wire drag programs were used to plot all data on this field sheet.

The sonargrams from the side scan sonar work were examined while on line and then again at the end of day. All contacts with AWOIS Item # 3190 were flagged during each examination. These flagged contacts were then logged in the Side Scan Sonar Target Abstract for that field sheet. The Target Abstract was then completed and the limits of the wreck were plotted on a wreck plot overlay. This wreck plot overlay was overlaid on the smooth sheet containing the vessel position plots during plotting. The detached position obtained over the wreck plots nearly within the limits of the wreck as determined from the side scan sonar data.

The towfish layback was computed by using only the stern to antenna distance (21.3m) due to the fact that a very short length of towcable was used during all side scan sonar operations. This short length of towcable, 15 feet, plus the action of the K-Wins caused the towfish to ride straight down off the stern, with nearly a vertical towcable angle. The layback and

ranse to tarset values from this list were the distances used to plot the contact positions. An odyssey protractor was used to plot the layback and the ranse to tarset. All values of towcable lensth on the sonarsram and in the soundins volumes refer only to the amount of cable out from the waterline to the towfish.

The Side Scan Sonar Tarset Lists were then compiled from the Tarset Abstracts and the detached position of the wreck. The position of the wreck was determined from detached position #14 taken on the marker float established by divers on the wreck's hishest point. The latitude and lonsitude of this and all detached positions were determined with the HP 9815 computer and the Geodetic Packase prosram.

J. Junctions and Splits

There were no junctions or splits contained within the limits of this survey area.

K. Comparison with Prior Surveys SEE EVAL. REPORT SEC. 4d AND 6b

The survey area is contained within the limits of prior survey H-7750(1948-1950). There is no indication on H7750(1948-1950) of this wreck or any other obstruction within the limits of the survey area.

L. Comparison With the Chart SEE EVAL. REPORT SEC. 7 AND 10a

The larsest scale chart which contains the survey area is NOS Chart 12224. The current edition of this chart at the time of survey operations was the 16th Ed., May 23/81 and was used for all chart comparisons.

The positions of the two floating aids to navisation contained on this field sheet were checked durins the course of this survey. The position obtained on York Spit Channel Lighted Bell Buoy "18" differs from the charted position and was found to be at latitude 37-08-43.~~65~~51N, lonsitude 076-08-50.~~15~~08W. The next edition of chart 12224 should be chansed to reflect this present position. RETAIN AS CHARTED York Spit Channel Lighted Whistle Buoy "17" is positioned on station and should remain as charted. The position of Fish Trap Buoy "C39", although not contained within the limits of this field sheet, was checked durins this survey. The present position of this buoy is latitude 37-12-08.04N, 076-12-33.91W which is northwest of the charted position. The next edition of chart 12224 should be chansed to reflect this present position. RETAIN AS CHARTED

The position of AWOIS Item #3190, as determined by this survey, plots nearly on top of the wreck symbol with a cleared depth of 28 feet charted at latitude 37-08-53.4N, lonsitude 076-09-09.6W. SOURCE IS CL 1960178

Charting Recommendation SEE EVALUATION REPORT SEC. 6b

It is recommended that a wreck symbol, as per Section 0.15 of NOS Chart 1, Seventh Edition, January 1979, be charted at latitude 37-08-52.~~96~~58N, lonsitude 076-09-08.~~93~~03W with a least depth of 35 feet, corrected for predicted tides, at MLLW. Remove

the wreck symbol, cleared to 28 feet, at latitude 37-08-53.4N, 076-09-09.6W. DO NOT CONCUR

All presently charted landmarks in the proximity of this survey were visually verified from offshore and are adequate as charted. No additional landmarks or aids to navigation were noted in the area as suitable for charting.

M. Adequacy of Survey SEE EVALUATION REPORT SEC. 7a

AWOIS Item #3190 was completely and thoroughly investigated by divers during this survey operation. The least depths and detached position of this wreck are accurate and considered adequate for charting. The least depths determined by ~~Pneumofathometer~~ PNEUMATIC DEPTH GAUGE during this survey must be corrected for smooth tides before being applied to the chart. It is not recommended that any of the leadline depths obtained by this survey be applied to the chart. Depths obtained by ~~Pneumofathometer~~ PNEUMATIC DEPTH GAUGE during this survey were shoaler and considered more accurate than the depths obtained by leadline. The deeper depths obtained by leadline are attributable to the tender launch not being directly over the divers at the time of reading.

N. Incomplete Items SEE EVAL. REPORT SEC. 9

There are no incomplete items contained in this survey.

O. Currents and Winds

Tidal currents were closely monitored during the course of this survey, since diving operations were planned to coincide with slack water whenever possible. Comparisons were made with the Tidal Current Tables 1984, Atlantic Coast of North America between the work area and station 5266, York River Ent. Channel (SE end).

In general, the times and strengths of maximum current and times of slack water agreed with the predicted times under normal conditions. However, this entire area is greatly influenced by the wind which results in nontidal currents which considerably prolong or reduce the tidal currents. Compared with the predicted tide current tables, the currents would generally run one hour longer when going with the wind and one hour shorter when opposing the wind. The strengths of maximum current flow were 1.0 to 1.5 knots greater than predicted under all conditions, even with calm winds of less than 5 knots.

P. Personnel

The officers from the NOAA Ships RUDE and HECK conducting this survey were LCDR Donald D. Winter, LT Neal G. Millett, LT Edward M. Clark, and ENS Thomas G. Callahan. The officers from the NOAA Ship MT. MITCHELL assisting with this survey were LT Roger L. Parsons, LT Donald R. Rice, LT(jg) Garner R. Yates,

LT(jg) Craig N.McLean, ENS John A. Miller, ENS William E. Sites, ENS Donna L. Sorensen.) THESE OFFICERS DID NOT ASSIST ON THE WORK FOR AWOIS ITEM #3190.

Q. General Notes

The ~~pneumofathometer~~ PNEUMATIC DEPTH GAUGE used during this survey, S/N 784996, was calibrated in southern Chesapeake Bay on JD 073 and is documented in Appendix E of this report. Depths obtained by ~~Pneumofathometer~~ PNEUMATIC DEPTH GAUGE during this survey were shoaler and considered more accurate than the depths obtained by leadline. The deeper depths obtained by leadline are attributable to the tender launch not being directly over the divers at the time of readings.

The detached position of this wreck, used for charting recommendations, was position #14. This detached position was obtained within 5 meters of the marker float established by divers on the highest point of the wreck.

Complete description of diving operations, documentation of diver investigation and drawing of this wreck are contained in Section E. (2) and Appendix F of this report.

Charting recommendations for this survey are contained in Section L. of this report.

The Notice to Mariners, submitted May 2, 1984, describing this wreck states that the least depth over the wreck as 34.0 feet. This least depth should be corrected to 35.0 feet. The positional data for the wreck in this Notice to Mariners is accurate as stated. A copy of the Notice to Mariners is included in Appendix H. of this report.

The Raytheon model DSF 6000N echo sounder has a much higher internal gain setting than does the Raytheon DE-719B echo sounder. Operation of the DSF 6000N with the gain controls set on "AUTO" in shallow water, less than 50 feet, results in a trace indicating many items in the water column. It is recommended that the gain controls of this echo sounding system be manually tuned during operations in shallow water for optimum results.

The format of this report is a composite of the Descriptive Report formats contained in the Wire Drag and Hydrographic Manuals. This format is the optimum composite of the pertinent sections of the two reports and is more applicable to the surveys currently being conducted by the RUDE and HECK.

The officers of the NOAA Ships RUDE and HECK would like to express their appreciation to the officers of the NOAA Ship MT. MITCHELL for their assistance with personnel, equipment, and launches during this survey while the NOAA Ships RUDE and HECK were undergoing repairs. DID NOT ASSIST DURING WORK ON AWOIS ITEM #3190.

Respectfully submitted,

Thomas G. Callahan

Thomas G. Callahan, ENS., NOAA

R. APPROVAL SHEET

OPR-E609-RU/HE-84

R/H 05-01-84

AWOIS ITEM #3190

Field operations contributing to the accomplishment of this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and field sheets have been closely reviewed and are considered complete and adequate for charting.

Donald D. Winter, LCDR, NOAA
Commanding Officer
NOAA Ships RUDE and HECK

MOA 23

**U.S. DEPARTMENT OF COMMERCE**
**National Oceanic and Atmospheric Administration**
NOAA SHIPS RUDE & HECK
439 West York St.
Norfolk, VA 23510

June 4, 1984

Mr. Eugene Batty
Norfolk District
U.S. Army Corps of Engineers
Colley & Front Streets
Norfolk, VA 23510

Mr. Batty,

Survey operations by the NOAA Ships RUDE and HECK have resulted in an updated position and condition of the charted wreck in the vicinity of York Spit Channel, AWOIS Item 3190.

A copy of the Descriptive Report for this completed survey is attached for your review. This report contains preliminary position and depth data subject to final verification at the Atlantic Marine Center, Norfolk, Virginia.

Please contact the RUDE and HECK at the Atlantic Marine Center if additional information is required.

Regards,

Donald D. Winter, LCDR, NOAA
Commanding Officer
NOAA Ships RUDE & HECK

Attachment

## C. HORIZONTAL CONTROL

No new stations were established for this survey. See Appendix D., Signal List for a complete listing of all stations used on this survey.

# D. SIGNAL LIST

OPR-E609-RWH2-84
CHESAPEAKE BAY

SIGNALS/STATIONS

YORK SPIT LIGHTHOUSE (1900)

| | |
|---|---|
| ID NBR | 1 |
| LAT | 371234.452 |
| LON | 761516.369 |
| ELEV'N | 11.28 M |
| FILE | 1 |

WOLF TRAP LIGHTHOUSE (1898)

| | |
|---|---|
| ID NBR | 2 |
| LAT | 372324.618 |
| LON | 761123.295 |
| ELEV'N | 15.85 M |
| FILE | 2 |

THIMBLE SHOAL LIGHTHOUSE (1919)

| | |
|---|---|
| ID NBR | 3 |
| LAT | 370051.712 |
| LON | 761425.875 |
| ELEV'N | 16.76 M |
| FILE | 3 |

CHERRYSTONE BAR LIGHT (1954)

| | |
|---|---|
| ID NBR | 4 |
| LAT | 371522.825 |
| LON | 760158.208 |
| FILE | 4 |

CAPE CHARLES CITY RANGE FRONT LIGHT (1954)

| | |
|---|---|
| ID NBR | 5 |
| LAT | 371445.887 |
| LON | 760128.843 |
| FILE | 5 |

CAPE CHARLES WATER TANK CHAR (1914)

| | |
|---|---|
| ID NBR | 6 |
| LAT | 371604.409 |
| LON | 760059.408 |
| FILE | 6 |

CHERITON, WEBSTER CANNING CO., TANK (1939)

| | |
|---|---|
| ID NBR | 7 |
| LAT | 371732.709 |
| LON | 755734.786 |
| FILE | 7 |

CAPE CHARLES 7TH ST ANCHORS NORTH TOWER DOME (1962)

| | |
|---|---|
| ID NBR | 8 |
| LAT | 370803.977 |
| LON | 755704.193 |
| FILE | 8 |

CAPE CHARLES 7TH ST ANCHORS SOUTH TOWER DOME (1962)

| | |
|---|---|
| ID NBR | 9 |
| LAT | 370802.246 |
| LON | 755704.282 |
| FILE | 9 |

CAPE CHARLES 7TH ST ANCHORS TOWER (1959)

| | |
|---|---|
| ID NBR | 10 |
| LAT | 370757.6[illegible] |
| LON | 755714.8[illegible] |
| FILE | [illegible] |

FISHERMAN ISLAND NAVY TOWER (1959)

| | |
|---|---|
| ID NBR | 11 |
| LAT | 370557.89[illegible] |
| LON | 755845.13[illegible] |
| FILE | 11 |

FISHERMAN ISLAND NAVY SHORAN TOWER (1959)

| | |
|---|---|
| ID NBR | 12 |
| LAT | 370551.122 |
| LON | 755845.45[illegible] |
| FILE | 12 |

FISHERMAN ISLAND NAVY WATER TANK (1959)

| | |
|---|---|
| ID NBR | 13 |
| LAT | 370604.124 |
| LON | 755843.436 |
| FILE | 13 |

CAPE CHARLES NEW LIGHTHOUSE (1887)

| | |
|---|---|
| ID NBR | 14 |
| LAT | 370722.808 |
| LON | 755424.577 |
| FILE | 14 |

NEW PT COMFORT LIGHTHOUSE (1871)

| | |
|---|---|
| ID NBR | 15 |
| LAT | 371883.167 |
| LON | 761641.171 |
| FILE | 15 |

OCEANVIEW MUNICIPAL WATER TANK (1950)

| | |
|---|---|
| ID NBR | 16 |
| LAT | 365651.633 |
| LON | 761533.886 |
| FILE | 16 |

MOORE (1943)

| | |
|---|---|
| ID NBR | 17 |
| LAT | 365650.489 |
| LON | 761611.421 |
| FILE | 17 |

~~FORT MONROE TANK (1929)~~

| | |
|---|---|
| ID NBR | 18 |
| LAT | 370824.444 |
| LON | 761841.996 |
| FILE | 18 |

~~CHAMBERLAIN VANDERBILT HOTEL WEST TOWER (1912)~~

| | |
|---|---|
| ID NBR | 19 |
| LAT | 370803.284 |
| LON | 761846.377 |
| FILE | 19 |

OLD POINT COMFORT ROUND BRICK CHIMNEY (1919)

| | |
|---|---|
| ID NBR | 20 |
| LAT | 370806.375 |
| LON | 761844.521 |
| FILE | 20 |

LITTLE CREEK NAB DESERT COVE TANK (1955)

| | |
|---|---|
| ID NBR | 21 |
| LAT | 365514.382 |
| LON | 760942.063 |
| FILE | 21 |

HAMPTON RADIO STATION WVEC MRST (1958)

| | |
|---|---|
| ID NBR | 22 |
| LAT | 370217.816 |
| LON | 761829.133 |
| FILE | 22 |

TOW (1947)

| | |
|---|---|
| ID NBR | 23 |
| LAT | 370712.122 |
| LON | 761759.260 |
| FILE | 23 |

FOX HILL MUNICIPAL WATER TANK (1939)

| | |
|---|---|
| ID NBR | 24 |
| LAT | 370454.897 |
| LON | 761715.253 |
| FILE | 24 |

~~CHEARSIDE USE (1939)~~

| | |
|---|---|
| ID NBR | 25 |
| LAT | 371119.428 |
| LON | 755954.063 |
| FILE | |

~~OLD PLANTATION FLATS LIGHT (1984)~~

| | |
|---|---|
| ID NBR | |
| LAT | 371343.1 |
| LON | 760250.256 |
| FILE | 26 |

# F. DIVING REPORT

## ITEM INVESTIGATION

DATE: 12 April, 1984, JD 103 SHIP/LAUNCH: RUDE and Launch RU-3

LOCATION: Chesapeake Bay, AWOIS Item #3190

DIVE MASTER LT Edward M. Clark, Jr.

DIVERS: LT Clark

LT Novaro

TIMES (UTC)

IN WATER

UNDER WATER

ON SURFACE

IN BOAT

MAXIMUM DEPTH Cummulative depths on 50' DIVE DURATION Cummulative time 99 min.

PNEUMOFATHOMETER NO. #784996

ITEM #3190

POSITION D.P. Fix #12

LEAST DEPTH

TIME(UTC) DEPTH (+5)

1. 1931/39.5 ft
2. 1931/39.5
3. 1931/40.5
4. 1932/40.5 5. 40.0

BOTTOM with leadline

TIME(UTC) DEPTH

1. 2000/52.0 ft in scour
2. 2004/51.0 in scour
3.

ITEM

POSITION

LEAST DEPTH

TIME(UTC) DEPTH

1.
2.
3.

BOTTOM

TIME(UTC) DEPTH

1.
2.
3.

ITEM

POSITION

LEAST DEPTH

TIME(UTC) DEPTH

1.
2.
3.

BOTTOM

TIME(UTC) DEPTH

1.
2.
3.

---

DRAWING OF ITEM - See drawing attached with Item Investigation Report from JD 104.

PNEUMO. DEPTH DATA REDUCED

| Time | Observed Depth | Pneumo Corr. | Tide Corr. | Least Depth |
|---|---|---|---|---|
| 1931 | 39.5 ft. | +1.5 | -1.0 | 40.0 ft.MLLW |
| 1931 | 39.5 | +1.5 | -1.0 | 40.0 |
| 1931 | 40.5 | +1.5 | -1.0 | 41.0 |
| 1932 | 40.5 | +1.5 | -1.0 | 41.0 |
| 1932 | 40.0 | +1.5 | -1.0 | 40.5 |

LEADLINE DEPTH DATA REDUCED

| Time | Observed Depth | Tide Corr. | Max Depth |
|---|---|---|---|
| 2000 | 52.0 ft. | -1.0 | 51.0 ft.MLLW |
| 2004 | 51.0 | -1.0 | 50.0 |

DESCRIPTION OF ITEM

Item is a wooden barge 100' LOA with a beam of 30'. The jack stay is bent over the fwd. ground tackle. This is the location of D.P. Fix #12. Pneumofathometer and leadline depths were recorded at this position.

# ITEM INVESTIGATION

DATE: 13 April, 1984, JD 104 SHIP/LAUNCH: RUDE and Launch RU-3

LOCATION: Chesapeake Bay, AWOIS Item #3190

DIVE MASTER LT Edward M. Clark, Jr.

DIVERS: LT Clark

LT Novaro

TIMES (UTC)

IN WATER

UNDER WATER

ON SURFACE

IN BOAT

MAXIMUM DEPTH Not exceeding 50 feet DIVE DURATION Cummulative time 74 min.

PNEUMOFATHOMETER NO. #784996

ITEM #3190

POSITION D.P Fix #12

LEAST DEPTH with leadline

TIME(UTC) DEPTH (+5)
1. 1450/36.5 ft.
2.
3.

BOTTOM

TIME(UTC) DEPTH
1. N/A
2.
3.

ITEM #3190

POSITION D.P. Fix #14

LEAST DEPTH with leadline

TIME(UTC) DEPTH (+5)
1. 1610/40.0 ft.
2. 1611/38.0 Boat unable to
3. develope 0 angle

BOTTOM

TIME(UTC) DEPTH
1. N/A
2.
3.

ITEM #3190

POSITION D.P. Fix #

LEAST DEPTH pneumo

TIME(UTC) DEPTH (+5
1. 1610/34.5 ft.
2. 1610/34.5
3. 1611/34.5

BOTTOM

TIME(UTC) DEPTH
1. N/A
2.
3.

DRAWING OF ITEM - See attached drawing

PNEUMO. DEPTH DATA REDUCED

| Time | Observed Depth | Pneumo Corr. | Tide Corr. | Least Depth |
|---|---|---|---|---|
| 1610 | 34.5 ft. | +0.5 | +0.0 | 35.0 ft.MLLW |
| 1610 | 34.5 | +0.5 | +0.0 | 35.0 |
| 1611 | 34.5 | +0.5 | +0.0 | 35.0 |

LEADLINE DEPTH DATA REDUCED

| Time | Observed Depth | Tide Corr. | Least Depth |
|---|---|---|---|
| 1450 | 36.5 ft. | -1.0 | 35.5 ft.MLLW |
| 1610 | 40.0 | +0.0 | 40.0 |
| 1611 | 38.0 | +0.0 | 38.0 |

DESCRIPTION OF ITEM

Tape measurement of 100' LOA, beam 30'. Ground tackle is as previously described. An irregular superstructure, appox. 3' high, begins 25' fro bow and continues to 75', totaling 5 in length and 24' in width. D.P. Fix #14 is located at the after port sid of this structure. The wreck has a slight stbd. list and is down slight in the bow.

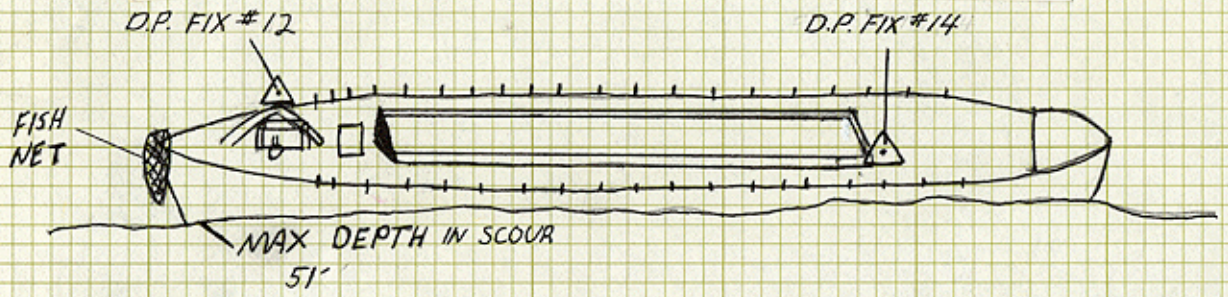
A detailed drawing of this wreck is provided with this report.

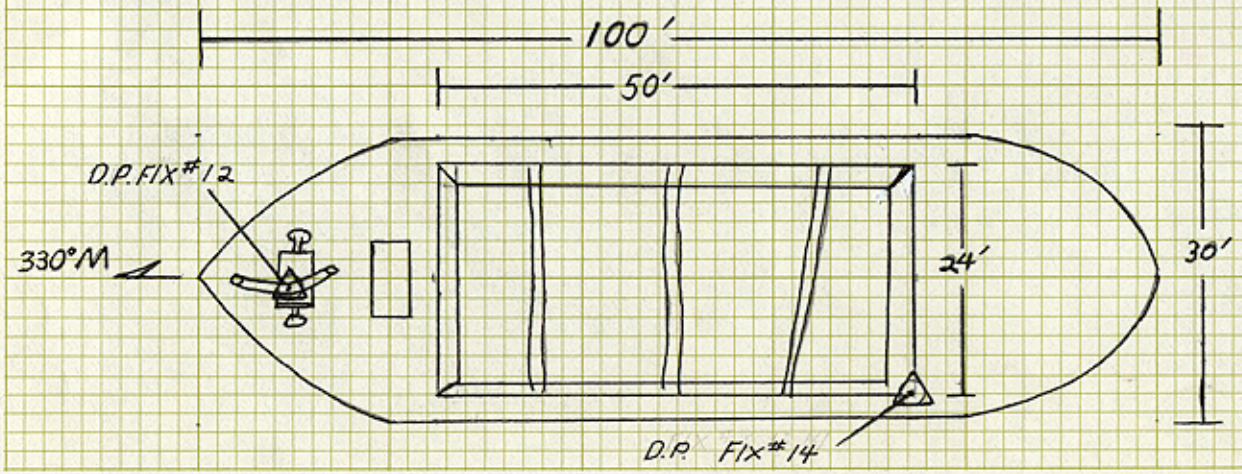
OPR-E609-RU/HE-84
AWOIS ITEM #3190

Fix #12 37°08'52.50"N Depth 40.0 ft.MLLW
076°09'10.44"W

Fix #14 37°08'52.96"N Least Depth 35.0ftMLLW
076°09'08.93"W

All depth data corrcted for predicted tides at MLLW




1 SQUARE = 2 FEET

## H. LOCAL NOTICE TO MARINERS REPORT

**U.S. DEPARTMENT OF COMMERCE**
**National Oceanic and Atmospheric Administration**
NOAA SHIPS RUDE & HECK
439 West York St.
Norfolk, VA 23510

May 2, 1984

To: Commander, Fifth Coast Guard District
Federal Building
431 Crawford St.
Portsmouth, VA 23705

From: LCDR Donald D. Winter
Commanding Officer

Subj: Notice to Mariners

Survey operations by the NOAA Ships RUDE and HECK in the vicinity of York Spit Channel, Buoy "17", Fl 4 sec WHIS, have identified, using NOAA divers, the wreckage of a wooden barge, 100' LOA, 30' Beam at latitude 37°08'52.96"N, longitude 76°09'8.93"W. Least depth over the wreck was 34.0 feet, using predicted tides. This position and least depth further defines and updates the currently charted wreck at latitude 37°08'53.4"N, longitude 76°09'09.6"W, with a depth of 28 feet.

Reference AWOIS Item 3190

## J. DANGERS TO NAVIGATION REPORT

NEGATIVE REPORT

DATE: 7/6/84

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

# TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Atlantic

OPR: E609

Hydrographic Sheet: RU/HE 5/1/84, FE-249

Locality: Chesapeake Bay

Time Period: April 11-14, 1984

Tide Station Used: 863-8610, Hampton Roads, VA.

Plane of Reference (Mean Lower Low Water): 4.01 ft.

Height of Mean High Water Above Plane of Reference: 2.6 ft.

Remarks: Recommended Zoning:

For Awois item #3190, apply -30 minute time correction and x0.97 range ratio.

James R. Hubbard
Chief, Tidal Datums Section

NOAA FORM 76-155
(11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SURVEY NUMBER

FE-249

# GEOGRAPHIC NAMES

| Name on Survey | A ON CHART NO. | B ON PREVIOUS SURVEY NO. | C ON U.S. QUADRANGLE MAPS | D FROM LOCAL INFORMATION | E ON LOCAL MAPS | F P.O. GUIDE OR MAP | G RAND MCNALLY ATLAS | H U.S. LIGHT LIST | K | |
|---|---|---|---|---|---|---|---|---|---|---|
| CHESAPEAKE BAY (title) | | | | | | | | | | 1 |
| VIRGINIA (title) | | | | | | | | | | 2 |
| YORK SPIT CHANNEL | | | | | | | | | | 3 |
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| | | | | | Approved: | | | | | 16 |
| | | | | | | | | | | 17 |
| | | | | | Charles E. Harrington | | | | | 18 |
| | | | | | Chief Geographer - N/CG2x5 | | | | | 19 |
| | | | | | JUL 30 1984 | | | | | 20 |
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NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27 | U.S. DEPARTMENT OF COMMERCE | REGISTRY NUMBER

# HYDROGRAPHIC SURVEY STATISTICS

FE-249

RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.

| RECORD DESCRIPTION | AMOUNT | RECORD DESCRIPTION | AMOUNT |
|---|---|---|---|
| SMOOTH SHEET | | SMOOTH OVERLAYS: POS., ARC, EXCESS | |
| DESCRIPTIVE REPORT | 1 | FIELD SHEETS AND OTHER OVERLAYS | |

| DESCRIPTION | DEPTH/POS RECORDS | HORIZ. CONT. RECORDS | SONAR-GRAMS | PRINTOUTS | ABSTRACTS/ SOURCE DOCUMENTS | |
|---|---|---|---|---|---|---|
| ACCORDIAN FILES | | | | 3 | | |
| ENVELOPES | | | 1 | | | |
| VOLUMES | 1 | | | | | |
| CAHIERS | 1 | | | | | |
| BOXES | | | | | | |

SHORELINE DATA

SHORELINE MAPS(List): N/A

PHOTOBATHYMETRIC MAPS(List): N/A

NOTES TO THE HYDROGRAPHER(List): N/A

SPECIAL REPORTS(List): N/A

NAUTICAL CHARTS(List): 12224

OFFICE PROCESSING ACTIVITIES

*The following statistics will be submitted with the cartographer's report on the survey*

| PROCESSING ACTIVITY | AMOUNTS | | |
|---|---|---|---|
| | VERIFICATION | EVALUATION | TOTALS |
| POSITIONS ON SHEET | | | 3 |
| POSITIONS REVISED | 0 | 0 | 0 |
| SOUNDINGS REVISED | 0 | 0 | 0 |
| CONTROL STATIONS REVISED | 0 | 0 | 0 |
| | TIME - HOURS | | |
| | VERIFICATION | EVALUATION | TOTALS |
| PRE-PROCESSING EXAMINATION | 0 | 2 | 2 |
| VERIFICATION OF CONTROL | 0 | 1 | 1 |
| VERIFICATION OF POSITIONS | 0 | 1 | 1 |
| VERIFICATION OF SOUNDINGS | 0 | 1 | 1 |
| VERIFICATION OF JUNCTIONS | 0 | 0 | 0 |
| APPLICATION OF PHOTOBATHYMETRY | 0 | 0 | 0 |
| SHORELINE APPLICATION/VERIFICATION | 0 | 0 | 0 |
| COMPILATION OF SMOOTH SHEET | 0 | 4 | 4 |
| COMPARISON WITH PRIOR SURVEYS AND CHARTS | 0 | 1 | 1 |
| EVALUATION OF SIDESCAN SONAR RECORDS | 0 | 1 | 1 |
| EVALUATION OF WIRE DRAGS AND SWEEPS | 0 | 3 | 3 |
| EVALUATION REPORT | 0 | 12 | 12 |
| OTHER CORRECTIONS AFTER INSPECTION | 0 | 3 | 3 |
| TOTALS | 0 | 29 | 29 |

| | | |
|---|---|---|
| *Pre-processing Examination by* C.D. MEADOR AND R.D. SANOCKI | *Beginning Date* 7/24/84 | *Ending Date* 7/24/84 |
| *Verification of Field Data by* C.D. MEADOR | *Time(Hours)* 7 | *Ending Date* 7/27/84 |
| *Verification Check by* | *Time(Hours)* | *Ending Date* |
| *Evaluation and Analysis by* C.D. MEADOR | *Time(Hours)* 20 | *Ending Date* 8/7/84 |
| *Inspection by* AND VERIFICATION CHECK R.D. SANOCKI | *Time(Hours)* 2 | *Ending Date* 8/2/84 |

ATLANTIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO.: FE-249 FIELD NO.: R/H-05-01-84

Virginia, Chesapeake Bay, York Spit Channel

SURVEYED: April 11 through April 13, 1984

SCALE: 1:20,000 PROJECT: OPR-E609-RU/HE-84

SOUNDING: Pneumatic Depth Gauge CONTROL: Del Norte (Range/Range)

Chief of Party.....D. D. Winter

Surveyed by.....N. G. Millett
.....E. M. Clark
.....T. G. Callahan

Automated Plot by.....Xynetics 1201 Plotter (AMC)

1. INTRODUCTION

a. No unusual problems were encountered during verification.

b. The field data for this field examination was collected at a scale of 1:5,000. It was processed during verification at a scale of 1:20,000 as required by section 7.3 of the Project Instructions.

c. Notes in the Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

a. The control is adequately described in sections F and G of the Descriptive Report.

b. There is no shoreline within the limits of this field examination.

3. HYDROGRAPHY

The only hydrography on this field examination is a single Pneumatic Depth Gauge least depth on a dangerous submerged wreck.

4. CONDITION OF SURVEY

The smooth sheet, hydrographic records and reports comply with the Hydrographic Manual except as follows:

a. No comparison was made with prior survey FE-222 WD (1978) as required by section 7.5 of the Project Instructions.

b. The buoys marking York Spit Channel in the field examination area were not hung as required by section 7.11.4 of the Project Instructions.

c. The dangerous submerged wreck was not cleared by two drag strips from opposite directions as required by section 7.11.3 of the Project Instructions. See the discussion in section 6b of this Evaluation Report.

d. There is no indication in the Descriptive Report for this field examination that the Norfolk District Office of the U.S. Army Corps of Engineers was contacted about possible additional information on this wreck as required by section 7.7 of the Project Instructions. See the discussion in section 6b of this Evaluation Report.

e. The discussion in section Q of the Descriptive Report about problems with the DSF6000N echo sounder was very informative. The field unit is encouraged to continue with such discussions when necessary.

f. The Descriptive Report for this survey was extremely well written.

5. JUNCTIONS

This is an item investigation with no junctional requirements.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrography

H-7750 1:40,000 1948-50

The prior survey depths in this area are 37 to 39 ft. The Pneumatic Depth Gauge depths of 41 ft. on some sections of this wreck indicate that natural deepening may have occurred in this area.

b. Wire Drag

FE-222 WD 1:20,000 1978

Although the smooth Area and Depth sheet has not been produced for this wire-drag field examination, the subdivision of all the wire-drag strips has been verified.

The shoalest hang on the sunken wooden barge on this prior wire-drag field examination was at an effective depth of 29 ft. in Latitude 37°08'53.4", Longitude 76°09'09.6", on JD 132 (May 12) of 1978. This hang was subsequently cleared by an effective depth of 27 ft. on JD 137 (May 17) of 1978.

The 28 ft. wire-drag clearance on a wreck presently charted in Latitude 37°08'53.4", Longitude 76°09'09.6", should be revised to a 27 ft. wire-drag clearance on a wreck.

There is a conflict of 5 ft. between the hang at an effective depth of 29 ft. on this prior wire-drag field examination and a 34 ft. least depth on the present field examination. This means there is some doubt whether the dive investigation on the present field examination found the least depth on the sunken wooden barge. It could be argued that the object hung at 29 ft. on the prior wire-drag field examination has since broken off the wreck. Natural deepening could also have caused the wreck to settle. However, the conservative charting practices of the NOS will not allow these types of arguments to influence a charting recommendation.

In order to find out if the Norfolk office of the U.S. Army Corps of Engineers had more information on the submerged wreck which might help to resolve the conflict, the author of this Evaluation Report met with Mr. Eugene Batty of the Dredge Maintenance Section on August 3, 1984.

A Plan for Dredging survey in the York Spit Channel done in June and August of 1983 stopped just before the position of the submerged wreck because the Corps of Engineers survey work is only done to 200 feet beyond the edge of a maintained channel. This Plan for Dredging survey shows depths of 40 ft. in the area just before the position of the submerged wreck.

Mr. Batty provided the information that this submerged wreck was previously located by side-scan sonar work done for the Corps of Engineers by Ocean Seismic Surveys. The interpretation of the side-scan record done by the Karrel Institute was that of a steel and wood vessel, 100 feet long, 25 feet wide and rising 9 feet off the bottom. No least depth was determined.

Also, in the summer of 1983, while Mr. Batty was doing additional side-scan sonar work in the area, divers from Ft. Eustis, Virginia, who were assisting Mr.Batty, dove on the submerged wreck. This dive produced the additional information that two steel beams, one 18 inches wide and 9½ feet long and the other 18 inches wide and 11 feet long, were on the channel side of the submerged wreck. The positions and least depths on these steel beams were not determined.

To get a better understanding of the diver search techniques used on the present field examination, a conversation with Lt. (jg) John Novaro in N/MOA2321 (Evaluation and Analysis Group) on July 31, 1984 established that the dive investigation was done in water visibility of two feet, which became even less when diver movement stirred up sediments. The dive investigation was done by feeling along the outer edges of the submerged wreck, securing a line at selected points, moving it in an arc and investigating all snags, and securing a line down the center axis of the wreck and then hand-in-hand, one diver went down the line and another along the outer edge in both directions.

The diver search techniques used were proper but there is a question whether more than just diver identification of the wreck as the one sought should have been done because of the underwater visibility.

Section 7.11.3 of the Project Instructions allows a diver determination of a least depth instead of clearance by two drag strips from opposite directions only when underwater visibility is good. In an attempt to more precisely define the meaning of good underwater visibility, a telephone conversation was held with Mr. Mark Friese (N/CG241) of the Operations Section on August 1, 1984. At present, N/CG241 has no established definitions for poor or good underwater visibility. Lt. Art Francis (N/MO15) of the NOAA Diving Program Office gave Mr. Friese his opinion that 2 feet or less of underwater visibility in the Chesapeake Bay would be considered poor visibility. In section 9.1.2 of the NOAA Diving Manual the discussion of visibility in the mid-Atlantic area states, "Much of the inshore waters of the northern area and off the major estuaries, such as the Hudson and Chesapeake, have poor visibility throughout most of the year".

## 7. COMPARISON WITH CHART 12224 (16th Edition, May 23, 1981)

### a. Hydrography

The source of the charted hydrography is CL 1960/78 which is composed of information from prior wire-drag field examination FE-222 WD. The charted information was based on predicted tides. With the verification of the wire-drag strips based on smooth tides, the charting recommendation found in the previous comparison with prior wire-drag field examination FE-222 WD should be followed.

Since the field did not resolve the conflict between prior wire-drag field examination FE-222 WD and the present survey data, the present field examination should not supersede the information from prior wire-drag field examination FE-222 WD.

### b. Aids to Navigation

There are two floating aids to navigation within the limits of the present survey.

## 8. COMPLIANCE WITH INSTRUCTIONS

Except as noted in section 4 of this Evaluation Report, this field examination adequately complies with the Project Instructions.

## 9. ADDITIONAL FIELD WORK

This is a basic field examination. Additional field work, consisting of wire-drag clearance strips from opposite directions, is recommended only if it is necessary to confirm or disprove the wire-drag clearance depth over this known wreck.

10. RECOMMENDATIONS

a. When the field finds that a floating aid to navigation is not at its charted position, this information should be promptly reported to the nearest U.S. Coast Guard District as required by sections 1.6.5 and 5.9 of the Hydrographic Manual.

If a floating aid to navigation is off station, do not recommend charting it at the field located position. Floating aids to navigation are charted at their officially maintained positions.

b. When echograms are submitted with the field work, the draft of the vessel's transducer should be documented in the Descriptive Report.

c. A criteria must be established regarding underwater visibility. Direction must be provided to the field units whether poor underwater visibility during a dive will require further investigation by approved wire-drag survey methods to determine safe clearance depths.

Charles D. Meador

Charles D. Meador
Chief, Evaluation and Analysis Group
Verification of Field Data and
Evaluation and Analysis

Inspection Report
FE-249

The completed survey has been inspected with regard to survey coverage, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts of the survey have been made. The survey complies with National Ocean Service requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

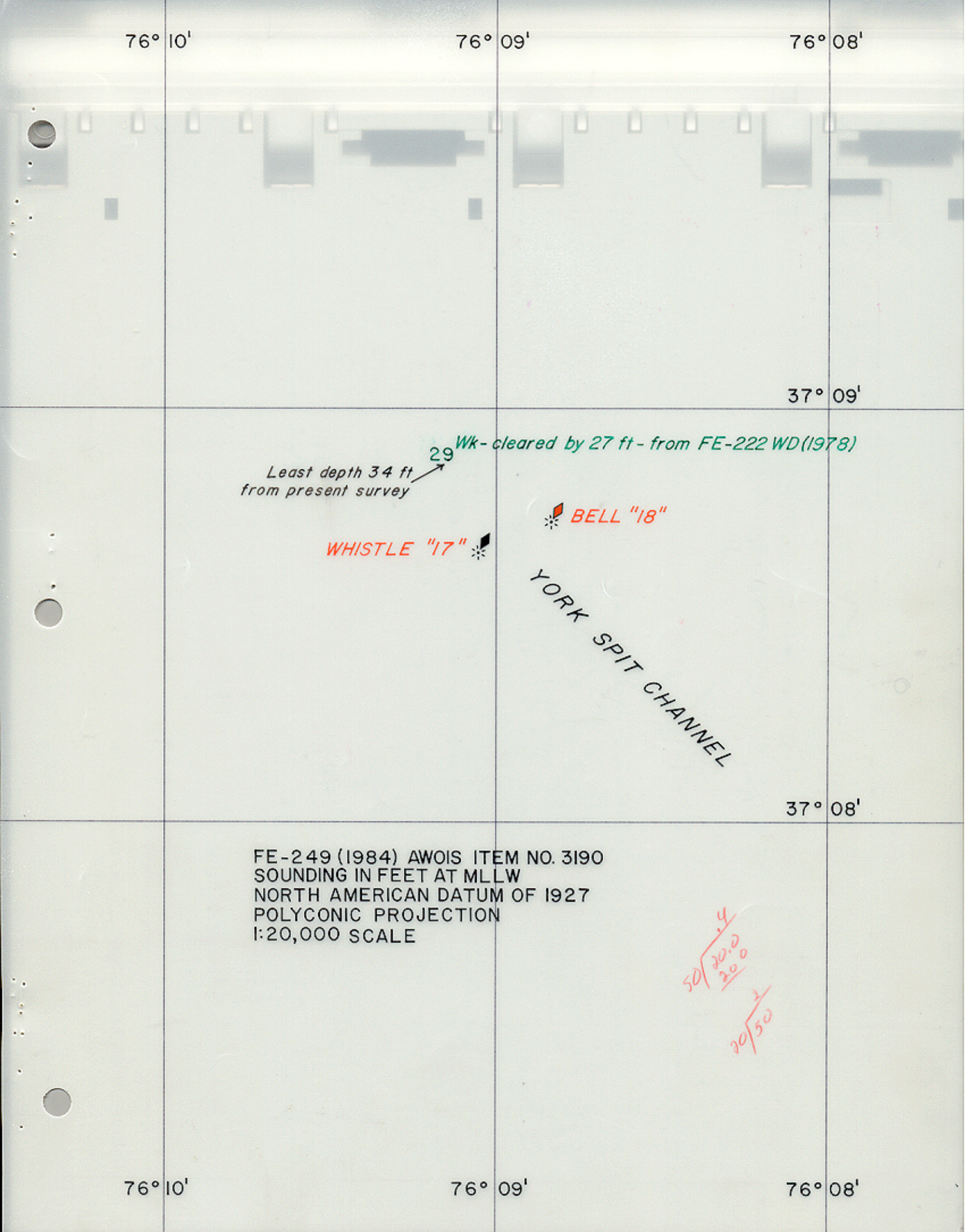
Inspected

R. D. Sanocki
Chief, Hydrographic Surveys
Processing Section
Hydrographic Surveys Branch

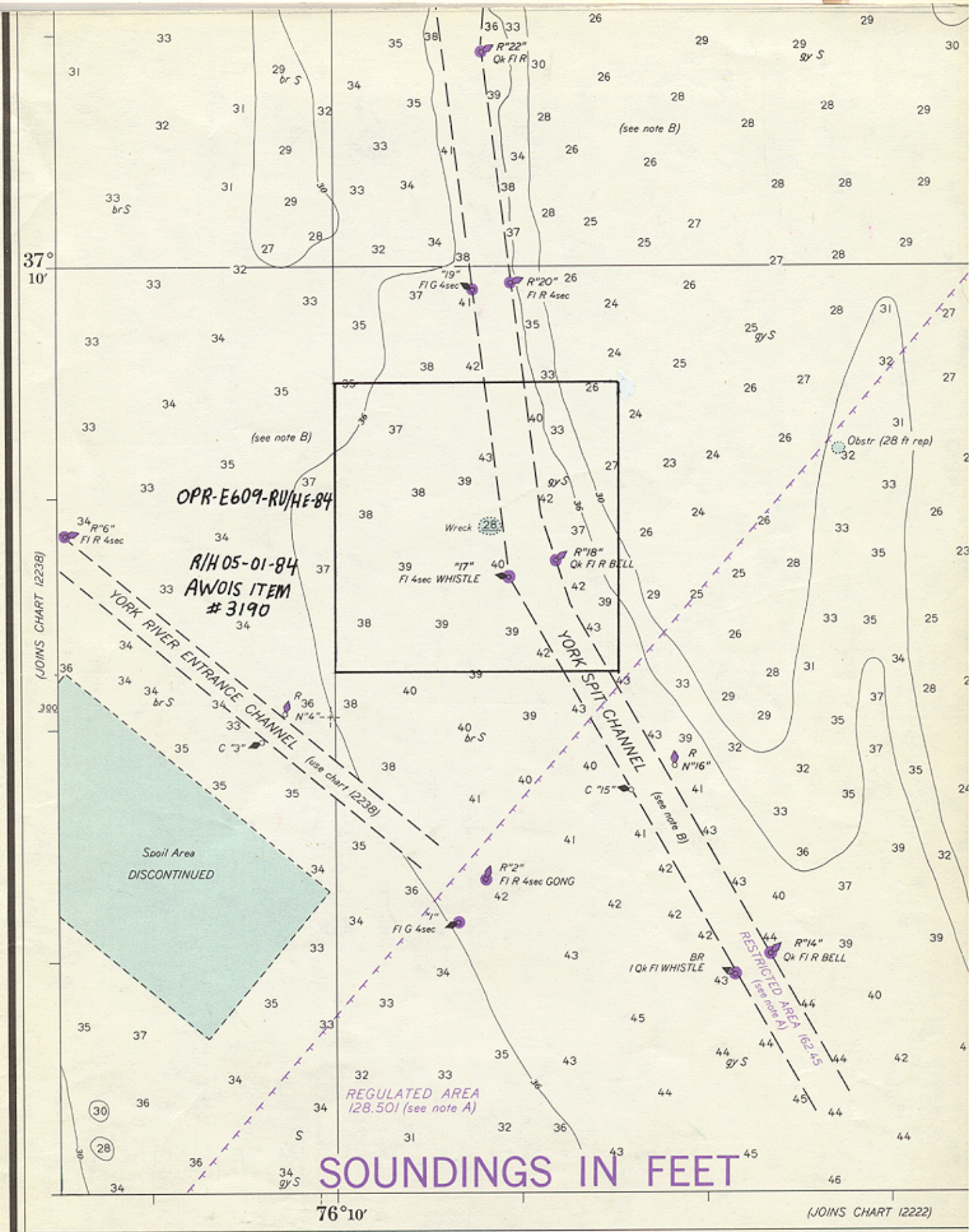
David B. MacFarland, Jr., LCDR, NOAA
Chief, Hydrographic Surveys Branch

Approved August 7, 1984

Wesley V. Hull, RADM, NOAA
Director, Atlantic Marine Center




FE-249 (1984) AWOIS ITEM NO. 3190
SOUNDING IN FEET AT MLLW
NORTH AMERICAN DATUM OF 1927
POLYCONIC PROJECTION
1:20,000 SCALE




16th Ed., May 23/81 ■

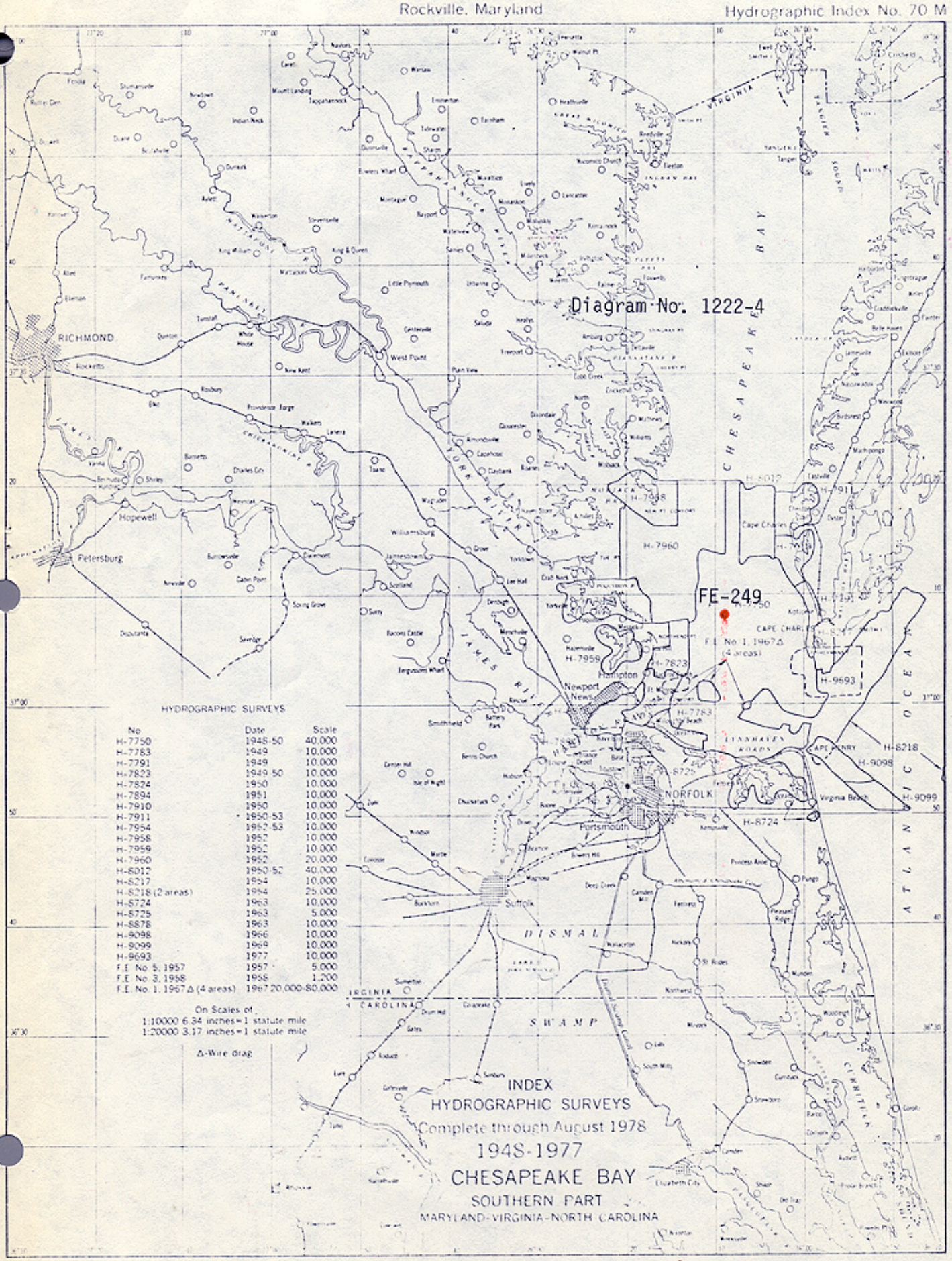
12224 Chart scale 1:40,000

CAUTION

This chart has been corrected from the Notice to Mariners published weekly by the Defense Mapping Agency Hydrographic/Topographic Center and the Local Notice to Mariners issued periodically by each U.S. Coast Guard district to the print date shown in the lower left hand corner.

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 70 M




HYDROGRAPHIC SURVEYS

| No. | Date | Scale |
|---|---|---|
| H-7750 | 1948-50 | 40,000 |
| H-7783 | 1949 | 10,000 |
| H-7791 | 1949 | 10,000 |
| H-7823 | 1949-50 | 10,000 |
| H-7824 | 1950 | 10,000 |
| H-7894 | 1951 | 10,000 |
| H-7910 | 1950 | 10,000 |
| H-7911 | 1950-53 | 10,000 |
| H-7954 | 1952-53 | 10,000 |
| H-7958 | 1952 | 10,000 |
| H-7959 | 1952 | 10,000 |
| H-7960 | 1952 | 20,000 |
| H-8012 | 1950-52 | 40,000 |
| H-8217 | 1954 | 10,000 |
| H-8218 (2 areas) | 1954 | 25,000 |
| H-8724 | 1963 | 10,000 |
| H-8725 | 1963 | 5,000 |
| H-8878 | 1963 | 10,000 |
| H-9098 | 1966 | 10,000 |
| H-9099 | 1969 | 10,000 |
| H-9693 | 1977 | 10,000 |
| F.E. No. 5, 1957 | 1957 | 5,000 |
| F.E. No. 3, 1958 | 1958 | 1,200 |
| F.E. No. 1, 1967 Δ (4 areas) | 1967 | 20,000-80,000 |

On Scales of
1:10000 6.34 inches = 1 statute mile
1:20000 3.17 inches = 1 statute mile

Δ-Wire drag

INDEX
HYDROGRAPHIC SURVEYS
Complete through August 1978
1948-1977
CHESAPEAKE BAY
SOUTHERN PART
MARYLAND-VIRGINIA-NORTH CAROLINA

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

# RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-249

## INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

| CHART | DATE | CARTOGRAPHER | REMARKS |
|---|---|---|---|
| 12220 | 4-15-85 | J. Bailey | Full ~~Part Before~~ After ~~Verification Review~~ Inspection Signed Via |
| | | | Drawing No. 51 Revised 28 WK to 27 WK |
| 12221 | 5-22-85 | H. Ladden | Full ~~Part Before~~ After Verification Review Inspection Signed Via |
| | | | Drawing No. 82 Revised cleared 28WK to 27WK |
| 12221 Prototype | | E Bodamer | Full ~~Part Before~~ After Verification Review Inspection Signed Via |
| | | | Drawing No. @ 28 WK to 27 WK |
| 12224 | 1-3-89 | Ed Martin | Full ~~Part~~ Before After Verification Review Inspection Signed Via |
| | | | Drawing No. 19 Rev. 28 WK to 27 WK |
| | | | Full Part Before After Verification Review Inspection Signed Via |
| | | | Drawing No. |
| | | | Full Part Before After Verification Review Inspection Signed Via |
| | | | Drawing No. |
| | | | Full Part Before After Verification Review Inspection Signed Via |
| | | | Drawing No. |
| | | | Full Part Before After Verification Review Inspection Signed Via |
| | | | Drawing No. |
| | | | Full Part Before After Verification Review Inspection Signed Via |
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FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

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